CLAIMS

1. A pharmaceutical composition for the treatment, prevention or diagnosis of a tumoral pathology comprising an active agent which stabilizes an actin network of a cellular cytoskeleton.

2. The pharmaceutical composition according to claim 1, wherein the active agent is selected from the group consisting of a zyxin protein or a polypeptide fragment thereof, a nucleic acid molecule comprising cDNA of a zyxin gene, a fragment thereof or a complementary sequence, or an antisense nucleic acid thereof, a cell or set of cells overexpressing the zyxin gene or a functional fragment thereof, and an inhibitor of cofilin.

3. The pharmaceutical composition according to claim 1, wherein the active agent binds polymerized actin F with an affinity constant greater by at least two logs than an affinity constant with which the active agent binds non-polymerized actin G.

4. The pharmaceutical composition according to claim 3, wherein the active agent bonding actin is a cyclic peptide.

5. The pharmaceutical composition according to claim 1, wherein the active agent is a zyxin protein or a polypeptide fragment thereof.

6. The pharmaceutical composition according to claim 1, wherein the active agent is a nucleic acid molecule comprising cDNA of a zyxin gene, a fragment thereof or a complementary sequence.

7. The pharmaceutical composition according to claim 1, wherein the active agent is a cell or a set of cells overexpressing a zyxin gene or a functional fragment thereof.

8. The pharmaceutical composition according to claim 1, wherein the active agent is an inhibitor of cofilin.

9. The pharmaceutical composition according to claim 1, wherein the active agent is associated with a vector of intracellular transport.

10. The pharmaceutical composition according to claim 9, wherein the vector of intracellular transport is a vector of viral recombinant expression or a vector of nonviral transport.

11. The pharmaceutical composition according to claim 10, wherein the vector of nonviral intracellular transport is selected from the group consisting of a lipid, particulate, microparticulate or nanoparticulate, polymer or polyplex vector, and cationic antibiotic.

12. The pharmaceutical composition according to claim 9, wherein the association between the active agent and the vector of intracellular transport is effected by noncovalent bonds.

13. The pharmaceutical composition according to claim 9, wherein the association between the active agent and the vector of intracellular transport is effected by covalent chemical bonds.

14. The Pharmaceutical composition according to claim 9, wherein the vector of intracellular transport is a vector of viral recombinant expression and the association between the active agent and the vector of intracellular transport is an integration of an active compound in the vector of viral expression.

15. The pharmaceutical composition according to claim 14, wherein the vector of viral recombinant expression is selected from the group consisting of an adenovirus, an adenovirus associated virus (AAV) and a retrovirus.

16. The pharmaceutical composition according to claim 14, wherein the vector of viral recombinant expression is a lentivirus or an oncovirus.

17. The pharmaceutical composition according to claim 2, wherein the cell overexpressing the zyxin gene or a functional fragment thereof is selected from the group consisting of a stem cell, a bone marrow cell, a hemopoietic cell and a hepatocarcinoma cell.

18. The pharmaceutical composition according to claim 2, wherein the cell overexpressing the zyxin gene or a functional fragment thereof is a CD34+ cell.

19. The pharmaceutical composition according to claim 2, wherein the cell overexpressing the zyxin gene or a functional fragment thereof stems from a patient with a tumoral pathology.

20. A vector of nonviral intracellular transport associated with the active agent defined in claim 9.

21. The vector according to claim 20, wherein the active agent is associated with said transport vector by noncovalent bonds.

22. A vector of intracellular transport comprising a vector of viral recombinant expression comprising a cDNA coding for a zyxin gene or a functional fragment thereof.

23. The vector according to claim 22, wherein the vector of viral recombinant expression is selected from the group consisting of an adenovirus, an adenovirus associated virus (AAV) and a retrovirus.

24. A cell genetically modified to overexpress a zyxin gene.

25. A cell genetically modified to underexpress a zyxin gene.

26. The cell according to claim 24, selected from the group consisting of a stem cell, a bone marrow cell, a hemopoietic and a hepatocarcinoma cell.

27. The cell according to claim 25, selected from the group consisting of a stem cell, a bone marrow cell, a hemopoietic and a hepatocarcinoma cell.

28. The cell according to claim 26, which is a CD34+ cell.

29. The cell according to claim 27, which is a CD34+ cell.

30. The cell according to claim 25, steming from a patient with a tumoral pathology.

31. A nonhuman transgenic mammal comprising at least one genetically modified cell underexpressing a zyxin gene or a functional fragment thereof.

32. A method of identifying compounds stabilize an actin network of a cytoskeleton of a cell comprising detecting a phenotypic reversion of expression of zyxin induced by the compounds comprising contacting a compound to be tested with the cell, and quantifying expression of zyxin in the cell.

33. The method according to claim 30, wherein quantifying the expression of zyxin is performed by comparing expression of zyxin messenger RNA in the cell in the presence and in the absence of the compound to be tested.

34. The method according to claim 30, wherein quantifying the expression of zyxin is performed by comparing expression of zyxin protein in the cell in the presence and in the absence of the compound to be tested.

35. A method for diagnosing a tumoral pathology comprising obtaining cells from a patient, and quantifying expression of zyxin in the cells.

36. The diagnostic method according to claim 35, wherein quantifying the expression of zyxin is performed by measuring messenger RNAs of zyxin.

37. The method according to claim 35, wherein quantifying the expression of zyxin is performed by comparing zyxin protein in cells collected at different intervals.

38. A method of analyzing a tumor phenotype of a patient comprising collecting cells from a patient at different intervals, quantifying expression of zyxin in the cells collected at different intervals, and comparing levels of expression and constructing a phenotypic differential profile of the patient.

39. The method according to claim 38, wherein the intervals correspond to different periods during antitumor treatment of a patient.

40. The method according to claim 39, wherein quantifying the expression of zyxin is performed by comparing expression of messenger RNA in the cells collected at intervals.

41. The method according to claim 39, wherein quantifying expression of zyxin is performed by comparing expression of zyxin protein in the cells collected at intervals.

42. A method of screening a compound active in the treatment of cancer comprising incubating tumor cells with an active agent which stabilizes an actin network of a cellular cytoskeleton, and measuring stabilization of polymerization of the actin network of the cells.

43. A method of treating or preventing hepatocarcinomas comprising administering a therapeutically effective amount of the composition according to claim 1 to a patient in need thereof.

44. A method of treating or preventing mesenchymal tumors comprising administering a therapeutically effective amount of the composition according to claim 1 to a patient in need thereof.

45. A method of treating or preventing neuroectodermal cancer comprising administering a therapeutically effective amount of the composition according to claim 1 to a patient in need thereof.

46. A method of treating or preventing Ewing's sarcoma comprising administering a therapeutically effective amount of the composition according to claim 1 to a patient in need thereof.

47. A method of treating malignant hemopathies associated with chromosonal anamolies of region 7q34/q35 of a zyxin gene comprising administering a therapeutically effective amount of the composition according to claim 1 to a patient in need thereof.